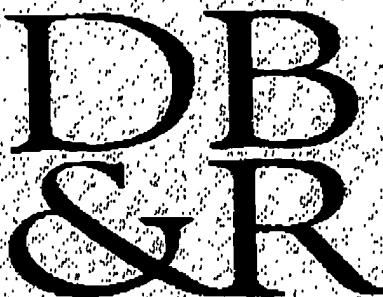


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FROM: Janet E. Reed, Ph.D.

RE: Change of Correspondence Address and
Statement Under 37 CFR 3.73(b) for:

US Patent Appl. No.: 7,078,481

Attorney Docket No.: 48503-0006-01-US (230055)

PAGES: 8 (inc. cover)

COMMENTS: Attached:

- (1) Transmittal (1 page)
- (2) Change of Correspondence Address – Patent and Statement Under CFR.3.73(b) for Millennium Pharmaceuticals, Inc. (3 pages)
- (3) Change of Correspondence Address – Patent and Statement Under CFR.3.73(b) for Wyeth (3 pages)

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Attorney Docket Number: 48503-0006-01-US (230055)

TRANSMITTAL LETTER

In Re Application of: Kenneth Rhodes, *et al.*

Application No.: 09/670,756

Filing Date: September 27, 2000

Patent No.: 7,078,481

Issue Date: July 18, 2006

Confirmation No.: 6507

Art Unit No.: 1646

Title: Potassium Channel Interactor And Uses Therefor

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Transmitted herewith is:

- CHANGE OF CORRESPONDENCE ADDRESS - Patent; and
STATEMENT UNDER 37 C.F.R. § 3.73(b):
 - 1) Millennium Pharmaceuticals, Inc. (3 pages)
 - 2) Wyeth (3 pages)


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CHANGE OF CORRESPONDENCE ADDRESS Patent

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Patent Number	7,078,481
Issue Date	July 18, 2006
Application Number	09/670,756
Filing Date	September 27, 2000
First Named Inventor	Kenneth RHODES et al.
Attorney Docket Number	48503-0006-01-US (formerly MNI-070CP4)

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Statement under 37 CFR 3.73(b) is enclosed. (Form PTO/SB/96).

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Signature

Typed or Printed Name Jean M. Silveri (Title: Associate General Counsel)

Date

Telephone (617) 679-7000

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STATEMENT UNDER 37 CFR 3.73(b)Applicant/Patent Owner: Kenneth RHODES et al.Application No./Patent No.: 7,078,481 Filed/Issue Date: July 18, 2006Entitled: POTASSIUM CHANNEL INTERACTORS AND USES THEREFORMILLENNIUM PHARMACEUTICALS, a corporation
(Name of Assignee) (Type of Assignee, e.g., corporation, partnership, university, government agency, etc.)

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The document was recorded in the United States Patent and Trademark Office at
Reel 011638, Frame 0652, or for which a copy thereof is attached.
2. From: Kenneth RHODES et al. To: American Home Products Corporation
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3. From: American Home Products Corporation To: WYETH
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☐ Additional documents in the chain of title are listed on a supplemental sheet.

☐ As required by 37 CFR 3.73(b)(1)(i), the documentary evidence of the chain of title from the original owner to the assignee was, or concurrently is being, submitted for recordation pursuant to 37 CFR 3.11.

[NOTE: A separate copy (i.e., a true copy of the original assignment document(s)) must be submitted to Assignment Division in accordance with 37 CFR Part 3, to record the assignment in the records of the USPTO. See MPEP 302.08]

The undersigned (whose title is supplied below) is authorized to act on behalf of the assignee.

Jean M. Silveri
Signature

11/6/06
Date

Jean M. Silveri

(617) 679-7000

Printed or Typed Name

Telephone Number

Associate General Counsel
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This collection of information is required by 37 CFR 3.73(b). The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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US007078481B1

(12) **United States Patent**
Rhodes et al.

(10) Patent No.: **US 7,078,481 B1**
(45) Date of Patent: **Jul. 18, 2006**

(54) **POTASSIUM CHANNEL INTERACTORS AND USES THEREFOR**

(75) Inventors: Kenneth Rhodes, Neshaan Station, NJ (US); Maria Betty, Mt. Laurel, NJ (US); Hual-Ping Ling, Princeton Junction, NJ (US); Wenqian An, Wayland, MA (US)

(73) Assignees: Wyeth, Madison, NJ (US); Millennium Pharmaceuticals, Inc., Cambridge, MA (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 575 days.

(21) Appl. No.: 09/670,756

(22) Filed: Sep. 27, 2000

Related U.S. Application Data

(63) Continuation-in-part of application No. PCT/US99/27428, filed on Nov. 19, 1999, and a continuation-in-part of application No. 09/400,492, filed on Sep. 21, 1999, and a continuation-in-part of application No. 09/399,913, filed on Sep. 21, 1999, now Pat. No. 6,361,971, and a continuation-in-part of application No. 09/350,614, filed on Jul. 9, 1999, now Pat. No. 6,689,581, which is a continuation-in-part of application No. 09/350,874, filed on Jul. 9, 1999, now abandoned, which is a continuation-in-part of application No. 09/298,731, filed on Apr. 23, 1999, now Pat. No. 6,369,197.

(60) Provisional application No. 60/110,277, filed on Nov. 30, 1998, provisional application No. 60/110,033, filed on Nov. 25, 1998, and provisional application No. 60/109,333, filed on Nov. 20, 1998.

(51) Int. Cl.
C07K 14/00 (2006.01)
C07K 14/435 (2006.01)

(52) U.S. Cl. 530/350; 530/300

(58) Field of Classification Search 530/300, 530/350

See application file for complete search history.

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Dixon, J., "Role of the Kv4.3 K⁺ channel in ventricular muscle: A molecular correlate for the transient outward current" *Circ Res.* 79(4) 659-68 (1996).

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Fukuda, J. et al., "Breakdown of cytoskeletal filaments selectively reduces Na and Ca spikes in cultured mammalian neurones," *Nature* 294(5836):82-5 (1981).

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Hoffman, D.A. et al., "K⁺ channel regulation of signal propagation in dendrites of hippocampal pyramidal neurons," *Nature* 387(6636):869-75 (1997).

(Continued)

Primary Examiner—Brenda Brumback

Assistant Examiner—Joseph F. Murphy

(74) Attorney, Agent, or Firm—Amy E. Mandragouras; Marie Laccotripe Zacharakis Lohive & Cockfield LLP

(57) **ABSTRACT**

The invention provides isolated nucleic acids molecules, designated PCIP nucleic acid molecules, which encode proteins that bind potassium channels and modulate potassium channel mediated activities. The invention also provides antisense nucleic acid molecules, recombinant expression vectors containing PCIP nucleic acid molecules, host cells into which the expression vectors have been introduced, and nonhuman transgenic animals in which a PCIP gene has been introduced or disrupted. The invention still further provides isolated PCIP proteins, fusion proteins, antigenic peptides and anti-PCIP antibodies. Diagnostic methods utilizing compositions of the invention are also provided.

22 Claims, 48 Drawing Sheets

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DOCKET NO.: 48503-0006-00-US (AHP98298P5)
Patent No.: 7,078,481

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent of:
Kenneth Rhodes, et al.

Application No.: 09/670,756

Patent No: 7,078,481

Filing Date: September 27, 2000

Issue Date: July 18, 2006.

For: Potassium Channel Interactors and Uses Therefor

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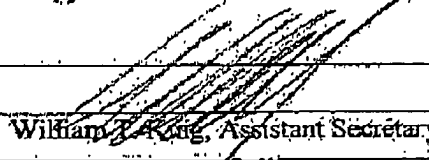
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Signature			
Name	William A. King, Assistant Secretary		
Date	11 September 2006	Telephone	(484) 865-8613
NOTE: Signatures of all the inventors or assignees of record of the entire interest or their representative(s) are required. Submit multiple forms if more than one signature is required, see below.			
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DOCKET NO.: 48503-0006-00-US (AHP98298P5)
Patent No.: 7,078,481

PATENT

STATEMENT UNDER 37 C.F.R. §3.73(b)

Applicant/Patent Owner(s): Wyeth
Millennium Pharmaceuticals, Inc.

Application/Patent No.: 7,078,481 Filed/Issued: July 18, 2006

Entitled: Potassium Channel Interactors and Uses Therefor

Wyeth, a corporation, states that it is one of the assignees of the entire right, title and interest in the patent application or patent identified above, by virtue of a chain of title from the inventors of the patent application or patent identified above, to the current assignees as follows:

1. From Kenneth RHODES, Maria BETTY and Hui-Ping LING to American Home Products Corporation. The document was recorded in the United States Patent and Trademark Office at Reel 011638, Frame 0406.
2. From American Home Products Corporation to WYETH. The document was recorded in the United States Patent and Trademark Office at Reel 013239, Frame 0870.
3. From Wenqian AN to Millennium Pharmaceuticals, Inc. The document was recorded in the United States Patent and Trademark Office at Reel 011638, frame 0652.

The undersigned, whose name is supplied below, is authorized to act on behalf of the assignee Wyeth.


Signature

William T. King
Printed or Typed Name

Assistant Secretary
Title


Date

(484) 865-8613
Telephone Number



US007078481B1

United States Patent

Rhodes et al.

(10) Patent No.: US 7,078,481 B1
(45) Date of Patent: Jul. 18, 2006

(54) POTASSIUM CHANNEL INTERACTORS AND USES THEREFOR

(75) Inventors: Kenneth Rhodes, Nesquehoning Station, NJ (US); Maria-Betty M. Lauril, NJ (US); Liang-Ping Wang, Princeton Junction, NJ (US); Weiqian An; Weyland, MA (US)

(73) Assignees: Wyeth, Madison, NJ (US); Millennium Pharmaceuticals, Inc., Cambridge, MA (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 575 days.

(21) Appl. No.: 09/679,756

(22) Filed: Sep. 27, 2000

Related U.S. Application Data

(65) Continuation-in-part of application No. PC/70599/27424, filed on Nov. 19, 1999, and a continuation-in-part of application No. 09/400,492, filed on Sep. 21, 1999, and a continuation-in-part of application No. 09/399,913, filed on Sep. 24, 1999, now Pat. No. 6,361,971, and a continuation-in-part of application No. 09/350,614, filed on Jul. 9, 1999, now Pat. No. 6,369,331, which is a continuation-in-part of application No. 09/501,574, filed on Jul. 9, 1999, now abandoned, which is a continuation-in-part of application No. 09/298,731, filed on Apr. 23, 1999, now Pat. No. 6,369,127.

(60) Provisional application No. 60/110,277, filed on Nov. 30, 1998; provisional application No. 60/110,033, filed on Nov. 25, 1998; and provisional application No. 60/109,339, filed on Nov. 20, 1998.

(51) Int. Cl.
C07K 14/40 (2006:01)
C07K 14/435 (2006:01)

(52) U.S. Cl. 530/350; 530/300

(58) Field of Classification Search 530/300, 530/350

See application file for complete search history.

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Bilbe, G., et al., "Resilin: a novel intermediate filament-associated protein highly expressed in the Reed-Sternberg cells of Hodgkin's disease," *EMBO J.* 11 (6):2103-2113 (1992).

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Dixon, J., "Role of the $K_v4.3$ K^+ channel in ventricular muscle: A molecular correlate for the transient outward current," *Circ. Res.* 79(4):659-68 (1996).

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Hoffman, D.A., et al., " K^+ channel regulation of signal propagation in dendrites of hippocampal pyramidal neurons," *Nature* 387(6636):869-75 (1997).

(Continued)

Primary Examiner—Brenda Brumback
Assistant Examiner—Joseph E. Murphy

(74) Attorney, Agent, or Firm—Amy H. Mandraganar, Marie Laccetripe Zacharias Lohme & Coe, P.C.

(57) ABSTRACT

The invention provides isolated nucleic acid molecules, designated PCIP, nucleic acid molecules, which encode proteins that bind potassium channels and modulate potassium channel mediated activities. The invention also provides antisense nucleic acid molecules, recombinant expression vectors containing PCIP nucleic acid molecules, host cells into which the expression vectors have been introduced, and nonhuman transgenic animals in which a PCIP gene has been introduced or disrupted. The invention still further provides isolated PCIP proteins, fusion proteins, antigenic peptides and anti-PCIP antibodies. Diagnostic methods utilizing compositions of the invention are also provided.

22 Claims, 48 Drawing Sheets